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Title: IMPROVEMENTS IN AND RELATING TO ARTIFICIAL FEET ;

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ABSTRACT:

PATENT SPECIFICATION



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COMPLETE SPECIFICATION.

Improvements in and relating to Artificial Feet.

I, JOHAN PHILIP DAHLLOF, of 69, Acland Street, St. Kilda, in the County of Bourke, State of Victoria, Commonwealth of Australia, a Swedish subject, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to the construction of artificial feet of the type comprising a heel member which is pivotally connected to an artificial leg and a front member which is pivotally connected to the heel member and controlled by springs which permit of a yielding or flexing movement similar to that of the natural foot during walking.

The object of the present invention is to provide an improved construction of the above type which is simple, inexpensive, efficient and not liable to disorder.

In accordance with the invention the improved artificial foot comprises a heel member and a front member, said members being of substantially "U" shape in plan and oppositely arranged so that the arms or side portions of the heel member extend forwardly and overlap the rearwardly extending side portions or arms of said front member, a pivot pin extending transversely through said overlapped portions of the heel and front members and longitudinally disposed springs coiled intermediately of their length around said pivot pin, the front and rear portions of said springs being connected to or engaged with said front and heel members respectively.

Other features will hereinafter appear and will be pointed out in the appended claims.

But in order that this invention may be better understood reference will now be made to the accompanying sheet of drawings which are to be taken as part of this Specification and read therewith:—

Figure 1 is a sectional elevation of an artificial foot in accordance with this invention.

Figure 2 is a part sectional plan of Figure 1.

Figure 3 is a fragmentary side elevation
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of the foot wherein heel and forward portions thereof are shown in positions which they assume when subjected to downward pressure as in walking.

The invention includes a heel member or frame 6 which is preferably of substantially "U" shape in plan, the bend 6a of the "U" being located at the extreme rear of the foot whilst the arms 6b of the U-shaped member extend forwardly. This heel member is intermediately pivoted as at 5 to the lower portion of the associated artificial leg, which lower portion preferably consists of a pair of depending leg irons 7 united at their lower ends by an integral or attached bridge 8. This bridge extends transversely beneath the said heel member which is preferably provided at its lower edge with opposite recesses 9 to accommodate said bridge with a slight amount of clearance to permit of limited pivotal movement of the heel member in relation to the leg irons.

Pivoted to the front portion of said heel member is a front member or frame 11 which is also preferably of substantially "U" shape in plan and forms the foundation of the metatarsus or forward portion of the foot, the bend or bow 11a of this U-shaped member being located at the toe whilst its opposite arms 11b extend rearwardly and are attached at their rear ends to a transverse pivot pin 12 by which the said heel 6 and said front member 11 are hingeably or pivotally connected together.

In order to limit the relative pivotal movement between said heel and front members the opposite arms 11b of the front member may be extended behind the above-mentioned transverse pivot pin 12 so as to overlap the arms 6b of the heel member. Carried by the overlapping portions of one of said members, for instance the heel member 6 are limit stops or pins 13 which work in suitable slots 14 of the other member.

In order resiliently to connect the pivoted heel and front portions of the foot so as to provide for the desired relative flexure and return of the parts to their normal position during walking, a

suitable spring device is provided. This spring device preferably comprises a plurality of longitudinal spring wires 16 or the like which may be coiled as at 17-
 5 around the aforesaid transverse pivot pin 12 connecting the heel and front members. The rear portions of said springs may be extended backwardly and attached within suitable openings at the back of
 10 the heel member 6 or as seen in Figures 1 and 2 they may pass freely through holes in a cross bar or guide member 19 within the heel member 6, and terminate against or adjacent the inner face of the
 15 return bend 6a of the heel member. The forward parts of said springs are preferably longer than the heel portions thereof and pass freely through openings in a
 20 cross bar 21 which extends across the front member or frame near the toe portion thereof. By this means the relative pivotal movements of the heel and front members during walking are taken by the
 25 springs which also return said members to the normal or horizontal positions which they assume when the foot is at rest.

A hood 22 or the like of leather, aluminium or other suitable material may be attached at either side of the pivoted front
 30 member so as to extend across the latter in arched formation and thus constitute the artificial instep of the foot. The rear edge of the hood may be covered by a
 35 strip 23 of leather or the like.

An artificial foot in accordance with the invention is simple and inexpensive in construction, and highly efficient and comfortable in operation, the pivoted heel
 40 and front sections and the spring means associated therewith permitting of natural bending movements of the foot when walking and effectively obviating the heavy stamping sound attendant upon the
 45 use of existing artificial feet.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I
 50 claim is:—

1. An artificial foot comprising in com-

bination a heel member and a front member, said members being of substantially
 "U" shape in plan and oppositely
 arranged so that the arms or side portions
 of the heel member extend forwardly and
 55 overlap the rearwardly extending side portions or arms of said front member, a pivot pin extending transversely through
 said overlapped portions of the heel and
 60 front members and longitudinally disposed springs coiled intermediately of their length around said pivot pin, the front and rear portions of said springs being connected to or engaged with said
 65 front and heel members respectively, for the purpose specified.

2. A device according to Claim 1 in combination with means for limiting the pivotal movement between said heel and front members, comprising a pin carried
 70 by one of said members and adapted to move in a slot formed in an adjacent overlapping portion of the other member, substantially as described.

3. A device according to Claim 1 or 2
 75 wherein said heel member is pivotally connected at a point rearwardly of said transverse pivot pin to a pair of leg irons or bars which are united at their lower ends by a bridge piece which is accommodated
 80 by recesses formed in the lower edge of said heel member, substantially as described.

4. A device according to any of the foregoing claims wherein said heel and front
 85 members are each provided with a cross bar or guide having apertures to freely accommodate the adjacent end portions of said springs for the purpose specified.

5. An artificial foot constructed and
 90 adapted to operate substantially as described and as illustrated in the accompanying drawings.

Dated this 2nd day of April, 1928.
 CRUIKSHANK & FAIRWEATHER,
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and
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 Agents for the Applicant.

